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Coronary Heart Disease: the MONICA-BELLUX Register

Michel Jeanjean*, Jean-Marie Krzesinski,
Guillaume Wunsch***

*Université catholique de Louvain, Belgium

**Université de Liège, Belgium

Background

- Cardiovascular diseases contribute to 42% of overall mortality in the European Union.
- Over a third of deaths from CVD are from coronary heart disease and just over a quarter are from cerebrovascular disease (stroke).
- Standardized death rates for heart disease have fallen dramatically in the last 25 years in Western Europe, both for men and for women.

Multinational MONItoring of trends and determinants in Cardiovascular disease
The MONICA Project

- A major source of information on cardiovascular diseases established in the early 1980s under the auspices of WHO, to monitor trends in cardiovascular diseases and to relate these to risk factor changes over a ten year period.
- There were a total of 37 MONICA Collaborating Centres in 21 countries (including 29 populations in 16 European countries).
- The ten year data collection was completed in the late 1990s, though several Centres are still active today.

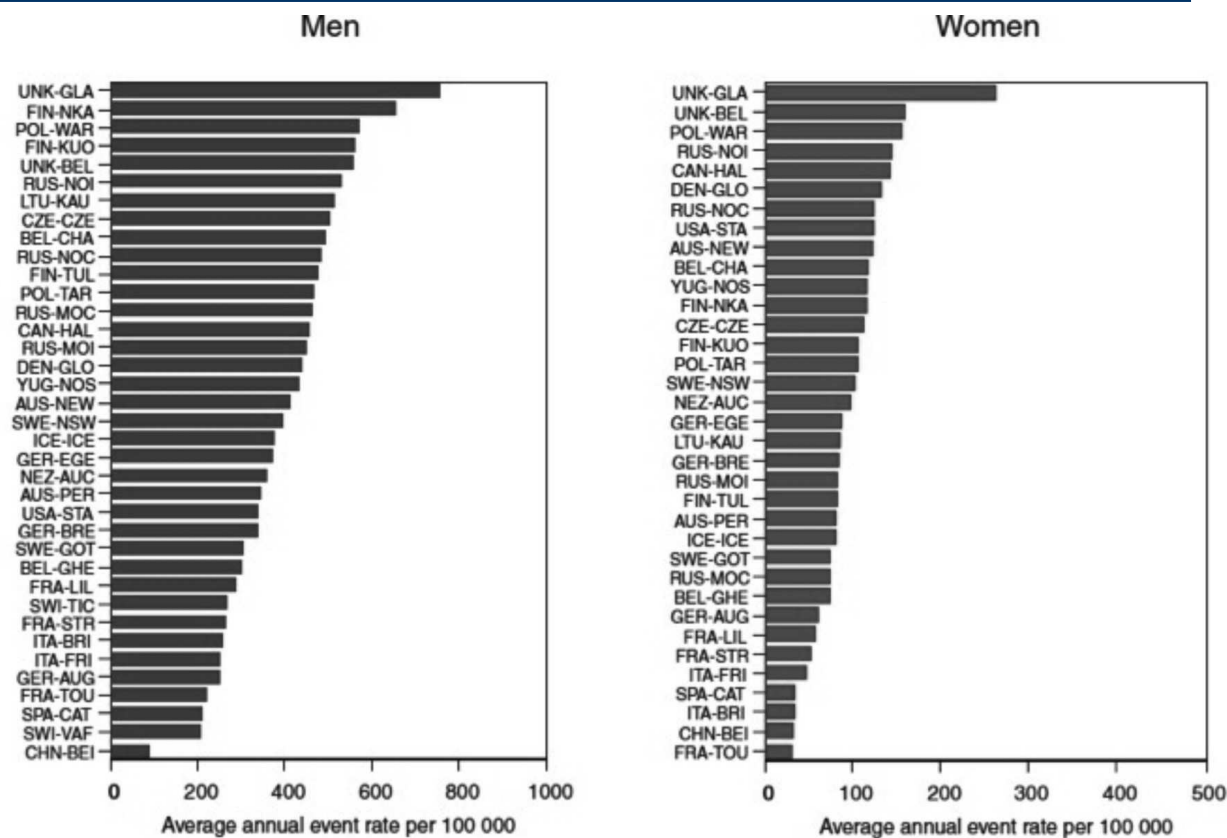
Four basic sources of information

- Routinely available administrative data on the study population, from local government and local medical sources.
- Investigation of medically recognized cardiovascular events, fatal and non-fatal, using medical and medico-legal sources and validating the original diagnoses using MONICA criteria.
- Continuous or intermittent monitoring of the acute care of coronary and stroke events.
- Population surveys to monitor levels of risk factors and health-related behaviour.

Changes in cardiovascular mortality rates

- Can be related to a change in disease incidence, or in case fatality, or in both disease incidence and case fatality.
- The MONICA Project therefore involved the measurement of both incidence rates and case fatality rates.
- Coronary events and Stroke registration were officially 'core' in the objectives but Stroke became 'optional' (information not reliable at that time).

**Age-standardized coronary event incidence rates (ages 35-64):
final three years of registration (MONICA registers)**



The MONICA- BELLUX Register

- The BELLUX register was set up in 1983 in the Belgian Province of Luxembourg as a MONICA Collaborating Centre.
- The reference population of the register is composed of all individuals aged 35 to 74, who are Belgian and residing in the Province of Luxembourg.
- BELLUX registers not only myocardial infarcts and coronary deaths but also since 1985 all coronary invasive diagnostic and therapeutic interventions.

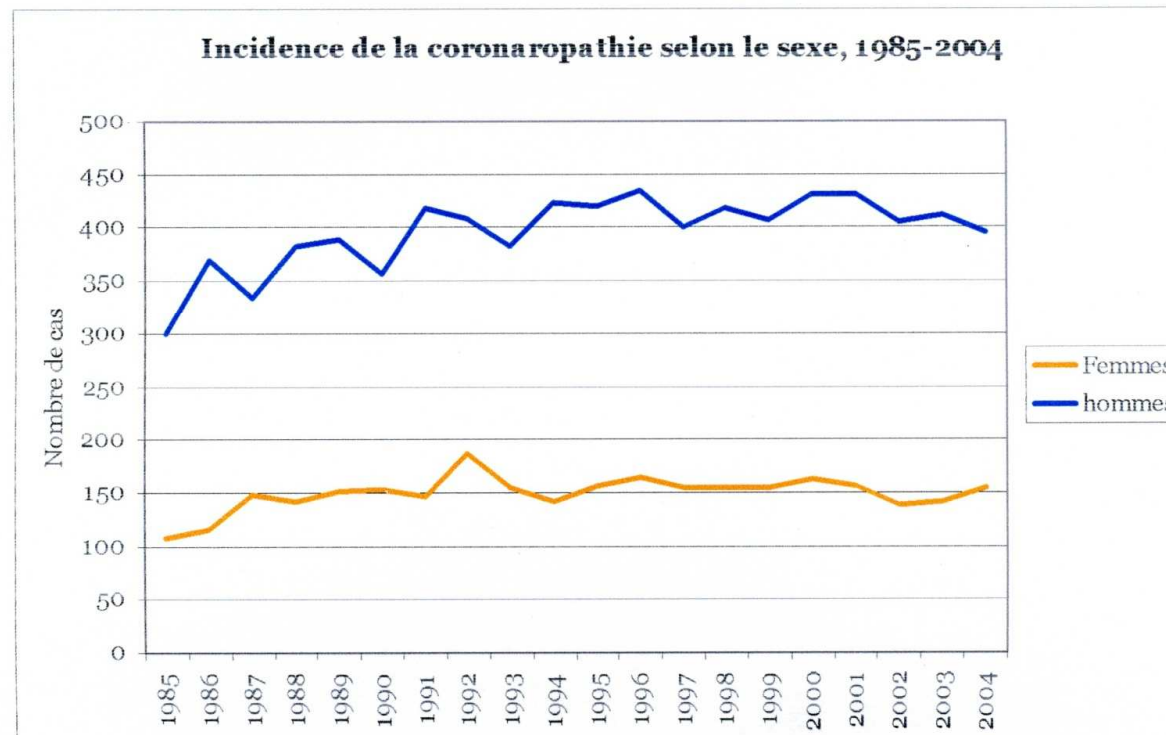
Data collection

- For fatal cases, information is obtained from the cause of death specified on the death certificate and validated by hospital records.
- For non-fatal cases, sources of data are hospital records with diagnosis of discharge (the so-called *cold pursuit* method).
- Concerning invasive diagnostic and therapeutic procedures, the data come from the same hospital sources (*résumé clinique minimal- RCM*)

Trends in the incidence of coronary events (infarcts and interventions)

1985 to 2004, ages 35 to 74 (MONICA-BELLUX register)

Nombre d'entrées par - événement : **5.863** (54%)
- intervention : **5.042** (46%)

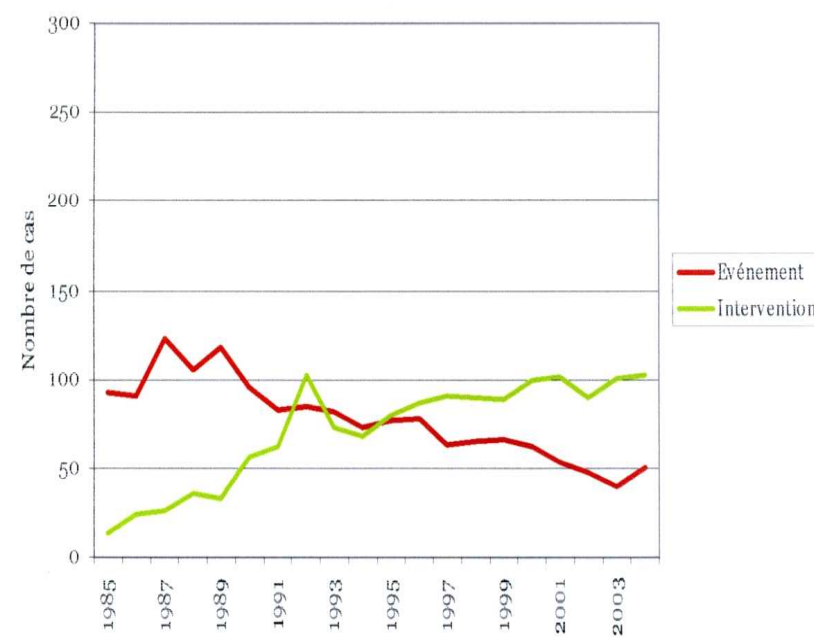


Trends in infarcts and interventions (MONICA-BELLUX register)

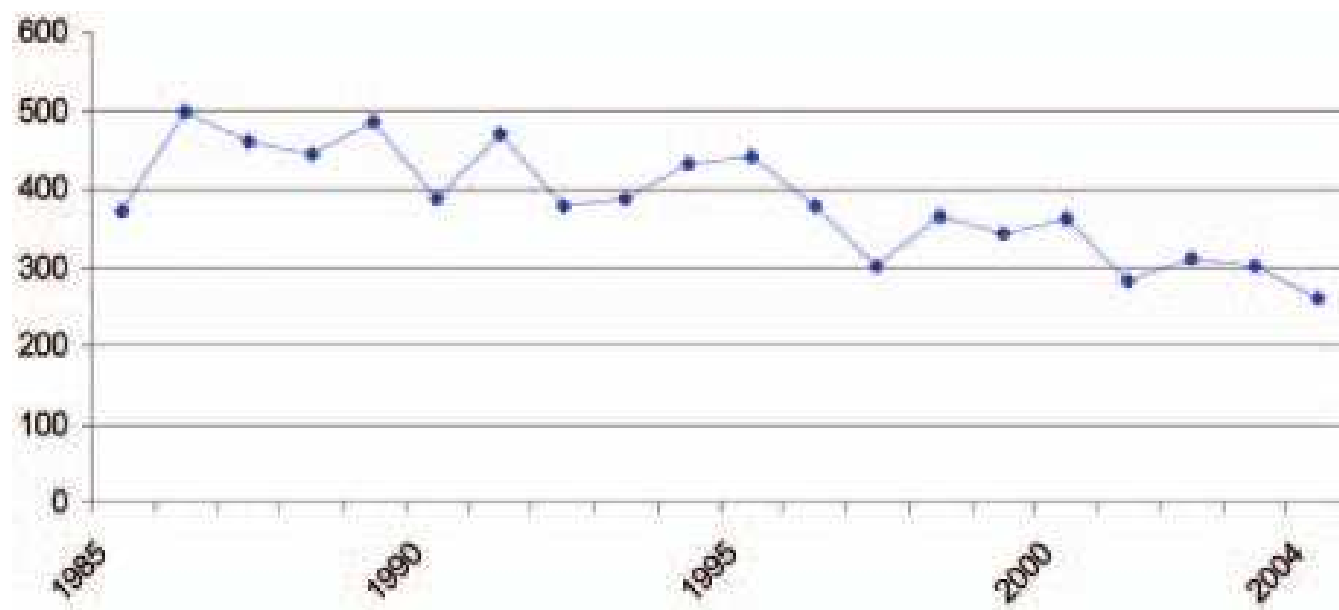
Mode d'entrée dans la maladie, 1985-2004 - Hommes



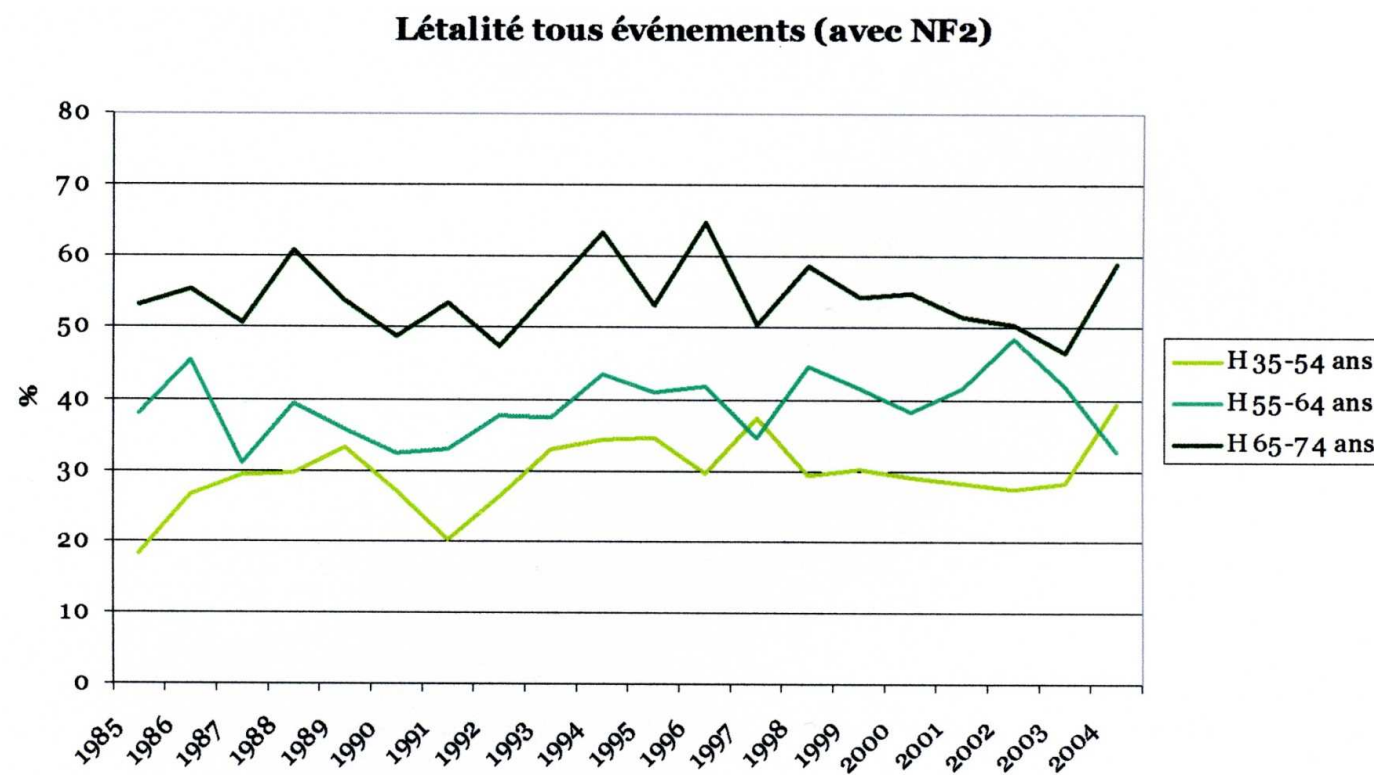
Mode d'entrée dans la maladie, 1985-2004 - Femmes



*Trends in myocardial infarction incidence rates (MONICA-BELLUX register)
Age-standardized rates for males, ages 35-74)*



***Trends in case fatality rates, males, ages 35-54, 55-64, 65-74
(MONICA-BELLUX register)***



Issues (I)

- A major difficulty of long-term projects such as MONICA is to sustain the project over the years.
- As CVD registers do not cover a whole country, events can occur outside the population of reference.
- Information on hospital discharges outside the area of reference is therefore required.

Issues (II)

- A same event can be declared by multiple sources: it is necessary to link events to the same individual.
- Diagnoses on hospital discharges or on death certificates do not necessarily correspond to the strict MONICA criteria and must be checked if possible.
- Finally, CVD registers cannot identify missed or misdiagnosed coronary events.

Conclusions

- CVD registers remain nevertheless an invaluable source for monitoring levels and trends in incidence and case fatality.
- Trends in incidence rates and in case fatality rates can significantly differ from one another.
- This situation requires better detection of individuals at risk. The intervention component of the BELLUX register is well-suited for this task.